

Environmental Protection Agency

Pressure Transducer Calibration Procedure

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NVFEL Reference Number

036A

Implementation Approval

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Revision Description

- (1) 09-18-2001 The purpose of this change is to update the Group Responsible name per EPCN #316

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1. Purpose

The purpose of this working procedure is to document the steps required to execute a two-point or multiple-point calibration (up to 6 calibration input points) of the pressure transducers in the PNGV test cells with the AMETEK Calibrator.

2. Test Procedure

101 Log to the computer by following the procedure WP 031, PNGV Start VX-In.

102 Double-click on the “MTS template” icon. Wait until it loads. The prompter will indicate: “Communication Established!” and the “Template” screen will appear. See Figure 1.

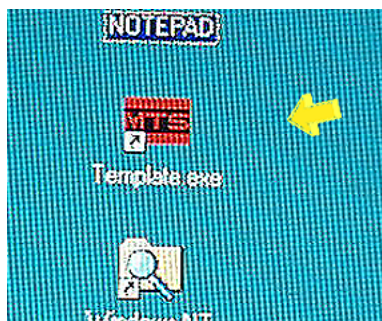


Figure 1
MTS Template icon

103 Pull down the “Display” menu, click on “Special” and select “CALIBRATE”. The “Calibration” screen will appear. See Figure 2.



Figure 2
Calibration Screen

104 Double-click on “Channel Num” to order the channels numerically.

- 105 Select the channel number of the pressure transducer you intend to calibrate. Click once to highlight it and then double-click on it to open the “Signal Display” screen.
- 106 A new box will request your Operator ID number. Enter your Operator ID number and Click on “OK.”
- 107 Set up the AMETEK Calibrator near the monitor. See Figure 3.

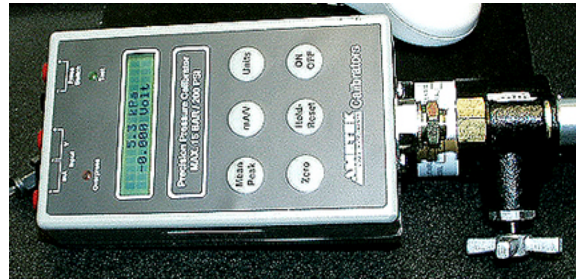


Figure 3
AMETEK Calibrator

- 108 Attach the appropriate handle, either the Portable Pneumatic (Pressure) Tester, see Figure 4, or the Portable Vacuum Tester, see Figure 5.

Note: You can select pressure or vacuum by changing the handles.



Figure 4
Pneumatic Tester Handle



Figure 5
Vacuum Tester Handle

- 109 Attach a 1/8 inch Teflon line from the transducer in the test cell to the Portable Pneumatic (or Vacuum) Tester.

- 110 Open the vent valve. Press the “ON OFF” button to turn it on.
- 111 To select the range, press “Units” and keep pressing to select the correct units.
- 112 Click on the “ZERO” button. The Calibrator screen will read: “SELF-CALIBRATING AND ZERO SETTING”.
- 113 On the monitor “Multipoint Calibration.vi” screen, highlight the appropriate row under “Raw Value” and “EU” by moving the calibration bar up or down. Select the EU value of 0.000; then click on the “Collect Data” button.
- 114 Close the AMETEK vent valve.
- 115 On the monitor screen, select and highlight the first test point under EU.
- 116 At the AMETEK, apply pressure (or vacuum) to the transducer under test by squeezing the handle to obtain the prescribed value given on the Transducer List.
- 117 When stable, click on the “Collect Data” button.
- 118 Move the calibration bar to the next row. Change the EU value to the next test point .
- 119 Apply the necessary pressure (or vacuum) to the transducer by squeezing the handle.
- 120 When stable, click on the “Collect Data” button.
- 121 Repeat Steps 115-120 for each test point . When all the raw values and EU values for the test points have been entered, ensure that the last test point is highlighted.
- 122 Click on the “Solve” button.
- 123 Click on the “Save” button.
- 124 When the “Calibrate Panel” appears with the message: “Save new information to Calibration Database?”, click on “OK”.

- 125 Enter the “Transducer ID” found on the AMETEK Calibrator. Enter the “Calibration Standard” as Ametek in the “Enter Cal Information” panel.
- 126 When the “OK” dialog box appears, Click on “OK.”
- 127 Print a hard copy of the “Pressure Transducer Calibration History” Report and place the it in the Calibrations File cabinet.
- 127 Proceed to the next transducer calibration, or disconnect the AMETEK Calibrator from the transducer and put it away.
- 128 Shut down the VX-In program by following WP 032, PNGV VXI Systems Shutdown.

3. Acceptance Criteria

- 3.1 The standard deviation must be $\pm 2\%$ of the specifications.
- 3.2 The hard copy of the “Pressure Transducer Calibration History” Report is filed.